

## **Measurement and Reporting of Water Diversion Emergency Regulations Digest**

### **Appendix 18 - Measurement and Reporting Requirements in Other Western States**

A review of the measurement and monitoring requirements was made of Colorado, Oregon, Washington, Utah, and Arizona. The following text provides a summary of the information collected during this review.

- **Watermaster and Dedicated Field Staff**
  - Oregon
    - A Watermaster oversees each water district and regulates (adjusts) control works.
    - Department's field personnel work with landowners to fully implement the measurement strategy.
    - Headgates can be locked and kept closed by the watermaster.
    - Required control and measuring devices shall be approved by the watermaster.
  - Colorado
    - Field offices are staffed by Water Commissioners. The Commissioners' general duties include hands-on administration of water rights and the collection and recording of data from the field.
    - All measuring and water delivery devices are under the supervision and control of the State Engineer and the Division Engineer
    - Locking headgates are mandatory.
  - Washington
    - Seven watermasters provide technical assistance, investigate complaints and unauthorized use, and some perform ditch rider duties (viewing diversions, adjusting gate settings, etc.)
    - They do not act as "water cops".
- **Surface Water Measurement**
  - Oregon
    - Many water right permits include measurement condition(s).
    - In 2000, strategic plan for improving water measurement focused on diversions with the greatest impact on streamflows in areas with the greatest fishery needs.
      - 2,300 "significant diversions" were identified in 300 high priority watersheds.
      - Accounts for about 10% of diversions, 50% of water diverted in the state.
    - If the commission finds accurate water use information necessary because of serious water management problems, the commission by rule may require a water right owner to install a measuring device and to submit annually a water use report.

- Measuring devices shall be required when necessary for regulation or management purposes.
  - Colorado
    - The state/division engineers have the authority to order owners to install and maintain measuring devices and to report at reasonable times the readings of such devices.
    - In order to place a priority call and divert water in priority when a call is in place, an owner must have an operable headgate and measuring device
  - Washington
    - Since 1993, Water Code requires measurement of:
      - Surface water diversions greater than 1 cubic foot per second.
      - Diversions and withdrawals from sources that support critical or depressed fish stocks.
    - A ruling from a 1999 lawsuit requires 80% metering compliance in 16 Fish Critical Basins.
    - Measurement device required as condition of all new permits since 2002
    - The Department may require the owner to maintain a measuring device.
  - Utah
    - Measurement required statewide at the point of diversion.
    - The State Engineer approves the measuring device and control works.
  - Arizona
    - When required by the Director of Water Resources, the owner shall construct and maintain measuring devices.
- **Reservoir Measurement**
  - Oregon
    - When required by the Water Resources Commission, a measuring device below, and one above, the reservoir on each stream or source of supply.
  - Colorado
    - The Division Engineer or Water Commissioner verbally directs reservoir users concerning the measurement devices and reporting necessary to administer reservoir rights
  - Washington
    - When required by the Department, construct and maintain any measuring device necessary to ascertain the natural flow into and out of said reservoir.
  - Utah
    - At the discretion of the State Engineer, measure inflow, outflow, and change in storage.
  - Arizona
    - When required by the Director, measure below reservoir and change in storage. Measuring above the reservoir if necessary.
- **Reporting Required**
  - Oregon
    - Reporting by government entities – about 23% of water users.

- Many water right permits include condition for annual reporting.
    - Water year reporting. Report by December 31. Two month extension of time may be requested.
    - Certified Water Right Examiners help users submit water use reports and other reports.
  - Colorado
    - Upon request of the Water Commissioner
    - Field staff collects water use and diversion data.
  - Washington
    - Report calendar year use by Jan. 31 of the following calendar year
- **Accuracy**
  - Washington
    - $\pm 10\%$  accuracy for reported diversions
    - Measurement devices shall be kept in good repair.
    - Date when device was last calibrated is part of the water use report.
    - Meters shall be inspected and maintained as specified by the manufacturer.
  - Colorado
    - The State Engineer and the Division Engineer control all headgates and measuring devices used in connection with canals, flumes and ditches or reservoirs.
    - The State Engineer or Division Engineer also rate measuring flumes and weirs.
  - Oregon
    - Rules describe specific types of measurement, but allow for alternatives upon approval.
    - Control works are under the control of the Watermaster.
    - Alternative method must be capable of reporting water use within an accuracy of  $\pm 15\%$ .
  - Utah
    - A reasonable effort must be made to ensure that flow measurements are as accurate as possible.
    - Calibration not typically mentioned. States with staff in the field are more likely to determine inadequacy of measurement and reporting devices.
- **Alternative Methods**
  - Oregon
    - Method shall be approved by the Department
    - Notes on method shall be maintained for at least three years
  - Washington
    - Similar to the measurement method proposed in the Emergency Regulation.
      - The method is approved in writing in advance by the Department.
      - The method is certified by a professional engineer or other qualified person.

- Measurements shall meet accuracy requirements
- **Enforcement**
  - Oregon
    - After providing 30 day notice, may terminate water deliveries and use of water by any right holder who fails to install and maintain a measuring device or to submit a report.
    - If the appropriator refuses or neglects to construct and install the required water use control or measuring devices or have an approved construction schedule for such installation after ten days' notice, the watermaster may close the diversion or open the reservoir outlet.
  - Colorado
    - The Division Engineer can refuse to deliver water if devices are not maintained in good repair.
    - Should the owner of a reservoir refuse to maintain a staff gauge at the outlet of a reservoir, the reservoir is not entitled to hold any water until such time as the device is properly installed.
  - Washington
    - The department may order that a measuring device or facility be repaired or replaced within a specified time period.
    - May issue regulatory orders and civil penalties.
  - Utah
    - State Engineer may forbid use of water or take other enforcement action if device or control works not installed within 30 days of State Engineer notice.
  - Arizona
    - May prevent diversion or release water from storage after providing 20 days' notice to construct or maintain device.
- **Number of Offices**
  - Oregon - Water Resources Department
    - Five office locations, 15 field offices.
  - Colorado - State Engineer Office in Denver
    - Seven division offices located in the seven major river basins of the state.
  - Washington - Department of Ecology
    - Four office locations and five field offices
    - Six regional measurement coordinators.
  - Utah - Division of Water Rights (State Engineer is the Director).
    - Headquarters in Salt Lake City and five regional offices

Arizona - Department of Water Resources